

**DISK DRIVE PULSE WIDTH MODULATING A VOICE COIL MOTOR  
USING MODEL REFERENCE CURRENT FEEDBACK**

**ABSTRACT OF THE DISCLOSURE**

A disk drive is disclosed comprising a voice coil motor (VCM) driven in a PWM mode using model reference current feedback. The PWM circuitry and VCM form a plant transfer function which varies with changes to the plant characteristics, such as the resistance of the voice coil fluctuating with temperature drift. A plant model having a model transfer function generates an estimated state of the VCM in response to a detected current flowing through the voice coil. A correction block, responsive to the detected current, adjusts PWM timing signals so that the plant transfer function substantially matches the model transfer function.